



6560-50-P

## **ENVIRONMENTAL PROTECTION AGENCY**

**[EPA-R10-OW-2014-0505; FRL-9913-96-Region-10]**

### **Proposed Determination to Restrict the Use of an Area as a Disposal Site; Pebble Deposit Area, Southwest Alaska**

**AGENCY:** Environmental Protection Agency (EPA).

**ACTION:** Notice of availability and public hearing.

**SUMMARY:** Pursuant to section 404(c) of the Clean Water Act (CWA), the Environmental Protection Agency (EPA) Region 10 is requesting public comments on its proposed determination to restrict the use of certain waters in the South Fork Koktuli River (SFK), North Fork Koktuli River (NFK), and Upper Talarik Creek (UTC) watersheds in southwest Alaska as disposal sites for dredged or fill material associated with mining the Pebble deposit, a copper-, gold-, and molybdenum-bearing ore body. EPA Region 10 is also announcing a series of public hearings on this section 404(c) proposed determination.

**DATES:** Submit comments on the proposed determination on or before [INSERT DATE 60 DAYS FROM DATE OF PUBLICATION IN FEDERAL REGISTER]. See PUBLIC HEARING section below for public hearing dates and related information.

**ADDRESSES:** I. How to Obtain a Copy of the Proposed Determination: The proposed determination is available primarily via the Internet on the EPA Region 10 Bristol Bay site at [www.epa.gov/bristolbay](http://www.epa.gov/bristolbay). Paper copies are available upon request from either of the following locations:

- EPA Alaska Operations Office, 222 W 7<sup>th</sup> Avenue, Room 537, Anchorage, AK 99513. The telephone number for this office is (907) 271-5083.
- EPA Region 10, Public Environmental Resource Center, 1200 Sixth Avenue, Suite 900, Seattle, WA 98101. The telephone number for this office is (800) 424-4372 or (206) 553-1200.

If you are requesting a paper copy, please provide your name, your mailing address, and the document title, “Proposed Determination of the U.S. Environmental Protection Agency Region 10 Pursuant to Section 404(c) of the Clean Water Act; Pebble Deposit Area, Southwest Alaska.”

II. How to Submit Comments to the Docket at [www.regulations.gov](http://www.regulations.gov): Submit your comments, identified by Docket ID No. EPA-R10-OW-2014-0505, by one of the following methods:

- Federal eRulemaking Portal (recommended method of comment submission): Go to <http://www.regulations.gov> and follow the online instructions for submitting comments.
- E-mail: Send email to [ow-docket@epa.gov](mailto:ow-docket@epa.gov). Include the docket number EPA-R10-OW-2014-0505 in the subject line of the message.
- Mail: Send your original comments and three copies to: Water Docket, Environmental Protection Agency, Mail Code 2822T, 1200 Pennsylvania Avenue NW, Washington, DC 20460, Attention: Docket ID No. EPA–R10–OW–2014–0505.
- Hand Delivery/Courier: Deliver your comments to EPA Docket Center, EPA West, Room 3334, 1301 Constitution Avenue NW, Washington, DC 20460, Attention: Docket ID No. EPA-R10-OW-2014-0505. Such deliveries are accepted

only during the Docket's normal hours of operation, 8:30 a.m. to 4:30 p.m. ET, Monday through Friday (excluding legal holidays). Special arrangements should be made for deliveries of boxed information. The telephone number for the Water Docket is (202) 566-2426.

- Submit at Public Hearing: see PUBLIC HEARINGS section below.

**Instructions:** EPA's policy is that all comments received will be included in the public docket without change and will be made available online at <http://www.regulations.gov>, including any personal information provided, unless the comment includes information claimed to be Confidential Business Information (CBI) or other information whose disclosure is restricted by statute. Do not submit information that you consider to be CBI or otherwise protected information through <http://www.regulations.gov> or e-mail. The <http://www.regulations.gov> Web site is an "anonymous access" system, which means EPA will not know your identity or contact information unless you provide it in the body of your comment. If you send an e-mail comment directly to EPA without going through <http://www.regulations.gov>, your e-mail address will be captured automatically and included as part of the comment that is placed in the public docket and made publically available on the Internet. If you submit an electronic comment, EPA recommends that you include your name and other contact information in the body of your comment and with any disk or CD-ROM you submit. If EPA cannot read your comment due to technical difficulties and cannot contact you for clarification, EPA might not be able to consider your comment. Avoid the use of special characters and any form of encryption, and ensure that electronic files are free of any defects or viruses. For additional

information about EPA's public docket visit the EPA Docket Center homepage at <http://www.epa.gov/epahome/dockets.htm>.

**Docket:** All documents in the docket are listed in the <http://www.regulations.gov> index. Some information, however, is not publicly available, e.g., CBI or other information whose disclosure is restricted by statute. Certain other material, such as copyrighted material, is publicly available only in hard copy. Publicly available docket materials are available either electronically at <http://www.regulations.gov> or in hard copy at the Water Docket, EPA Docket Center, EPA West, Room 3334, 1301 Constitution Avenue NW, Washington, DC. The Public Reading Room is open from 8:30 a.m. to 4:30 p.m. ET, Monday through Friday, excluding legal holidays. The telephone number for the Public Reading Room is (202) 566-1744, and the telephone number for the Water Docket is (202) 566-2426.

**PUBLIC HEARINGS:** In accordance with EPA regulations at 40 CFR 231.4, the Regional Administrator determined that public hearings on this section 404(c) proposed determination are in the public interest. The hearing dates and locations are as follows:

August 12, 2014	2:00 p.m.	Egan Center, Anchorage, Alaska
August 13, 2014	5:00 p.m.	Nondalton, Alaska
August 13, 2014	5:00 p.m.	New Stuyahok, Alaska
August 14, 2014	5:00 p.m.	Dillingham, Alaska
August 14, 2014	5:00 p.m.	Kokhanok, Alaska
August 15, 2014	12:00 p.m.	Igiugig, Alaska
August 15, 2014	12:00 p.m.	Iliamna, Alaska

Additional hearing details and any changes to the schedule are available at [www.epa.gov/bristolbay](http://www.epa.gov/bristolbay). The purpose of the public hearings is to obtain public testimony and comment on EPA Region 10's section 404(c) proposed determination regarding mining the Pebble deposit. The Regional Administrator will designate the official who will preside at the public hearing (the Presiding Officer). Any person may appear at the hearing and submit oral and/or written statements or data and may be represented by counsel or other authorized representatives. If you would like to submit written comments you may do so at the public hearings or by one of the methods described in the section of this public notice entitled: How to Submit Comments to the Docket at [www.regulations.gov](http://www.regulations.gov).

Members of the public can sign up to make a comment at the venue on the day of the meeting. The following information will be requested for each commenter: first name, last name, organization and title (if applicable), city, state, email address, and phone number. Tribal elders and elected officials will be invited to comment first. The facilitator will then use a random number system to select individuals who signed up to determine speaking order. Audio-visual equipment will not be provided.

To maximize the number of individuals who are able to speak at the hearing, oral statements may be limited to two minutes per person. There will be no cross examination of any hearing participant, although the Presiding Officer may make appropriate inquiries of any such participant. The hearing will remain open, within reason, until everyone who desires to speak has the opportunity.

EPA Region 10 will not respond to questions/comments during the hearing. EPA Region 10 will consider the oral and written statements received at the public hearings and other written comments submitted pursuant to the instructions set forth in the section of this public notice entitled: How to Submit Comments to the Docket at [www.regulations.gov](http://www.regulations.gov). Any person may present written statements for the hearing file, including rebuttals to other commenter statements, prior to the time the hearing file is closed to public submissions.

**FOR FURTHER INFORMATION CONTACT:** For information on the public comment period, contact the Water Docket; telephone: (202) 566-2426 or e-mail: [ow-docket@epa.gov](mailto:ow-docket@epa.gov). For technical information concerning the proposed determination, contact Judy Smith; telephone: (503) 326-6994 or e-mail: [r10bristolbay@epa.gov](mailto:r10bristolbay@epa.gov). For more information about EPA's efforts in Bristol Bay, copies of the section 404(c) proposed determination, or copies of the Bristol Bay Assessment, see <http://www.epa.gov/bristolbay>.

## **SUPPLEMENTARY INFORMATION:**

### **I. Information about the Proposed Determination**

The U.S. Environmental Protection Agency (EPA) Region 10 is requesting public comment on a proposed determination to restrict the use of certain waters in the Bristol Bay watershed for disposal of dredged or fill material associated with mining the Pebble deposit, a large ore body in southwest Alaska. EPA Region 10 is taking this step because of the high ecological and economic value of the Bristol Bay watershed and the assessed unacceptable environmental effects that would result from such mining. This proposed determination relies on clear EPA authorities under the Clean Water Act (CWA), and is

based on peer-reviewed scientific and technical information. Its scope is geographically narrow and it does not affect other deposits or mine claim holders outside of those affiliated with the Pebble deposit. EPA Region 10 is taking this step pursuant to section 404(c) of the CWA and its implementing regulations at 40 CFR part 231.

Alaska's Bristol Bay watershed is an area of unparalleled ecological value, boasting salmon diversity and productivity unrivaled anywhere in North America. As a result, the region is a globally significant resource with outstanding value. The Bristol Bay watershed provides intact, connected habitats—from headwaters to ocean—that support abundant, genetically diverse wild Pacific salmon populations. These salmon populations, in turn, maintain the productivity of the entire ecosystem, including numerous other fish and wildlife species.

The Bristol Bay watershed's streams, wetlands, and other aquatic resources support world-class, economically important commercial and sport fisheries for salmon and other fishes, as well as a more than 4,000-year-old subsistence-based way of life for Alaska Natives. Each year Bristol Bay supports the world's largest runs of sockeye salmon, producing approximately half of the world's sockeye salmon. These sockeye salmon represent the most abundant and diverse populations of this species remaining in the United States. Bristol Bay's Chinook salmon runs are frequently at or near the world's largest, and the region also supports significant coho, chum, and pink salmon populations. Because no hatchery fish are raised or released in the watershed, Bristol Bay's salmon populations are entirely wild. Bristol Bay is remarkable as one of the last places on Earth with such bountiful and sustainable harvests of wild salmon. One of the

main factors leading to the success of this fishery is the fact that its aquatic habitats are untouched and pristine, unlike the waters that support many other fisheries.

Nearly 70% of the sockeye and large numbers of the coho, Chinook, pink, and chum salmon are harvested in commercial, subsistence, and recreational fisheries before they can return to their natal lakes and streams to spawn. Thus, these salmon resources have significant economic, nutritional, cultural, and recreational value, both within and beyond the Bristol Bay region. The Bristol Bay watershed's ecological resources generated nearly \$480 million in direct economic expenditures and sales and provided employment for over 14,000 full- and part-time workers in 2009. The Bristol Bay commercial salmon fishery generates the largest component of this economic activity, with an estimated value of \$300 million (sales from fishers to processors) and employment for over 11,000 full- and part-time workers (USEPA 2014: Chapter 5).

In February 2011, Northern Dynasty Minerals Ltd. (NDM) and the Pebble Limited Partnership (PLP) formally submitted information to the U.S. Securities and Exchange Commission (SEC) that put forth plans for the development of a large-scale mine at the headwaters of this pristine ecosystem. Their proposal outlines several stages of mine development, the smallest being a 2.0-billion-ton mine<sup>1</sup> and the largest being a 6.5-billion-ton mine<sup>2</sup> (Ghaffari et al. 2011, SEC 2011), both of which are larger than 90% of the known ore deposits of this type in the world (USEPA 2014: Chapter 4).

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<sup>1</sup> Ghaffari et al. (2011) call the 2.0 stage mine the "Investment Decision Case," which describes an initial 25-year open pit mine life upon which a decision to initiate permitting, construction, and operations may be based.

<sup>2</sup> Ghaffari et al. (2011) call the 6.5 stage mine the "Resource Case," which is based on 78 years of open pit production and seeks to assess the long-term value of the project in current dollars.



The Pebble deposit is a large, low-grade, porphyry copper deposit (containing copper-, gold-, and molybdenum-bearing minerals) that underlies portions of the South Fork Koktuli River (SFK), North Fork Koktuli River (NFK), and Upper Talarik Creek (UTC) watersheds. Based on information provided by NDM and PLP to the SEC (Ghaffari et al. 2011, SEC 2011), mining the Pebble deposit is likely to involve excavation of the largest open pit ever constructed in North America, covering up to 6.9 square miles (17.8 km<sup>2</sup>) and reaching a depth of as much as 0.77 mile (1.24 km) (USEPA 2014: Chapter 6); for reference, the maximum depth of the Grand Canyon is approximately 1 mile. Disposal of resulting waste material would require construction of up to three mine tailings impoundments covering an additional 18.8 square miles (48.6 km<sup>2</sup>) and waste rock piles covering up to 8.7 square miles (22.6 km<sup>2</sup>) (USEPA 2014: Chapter 6) in an area that contains highly productive streams and wetlands. The volume of mine tailings, and waste rock produced from the smallest mine proposed by NDM/PLP to the SEC (Ghaffari et al. 2011, SEC 2011) would be enough to fill a professional football stadium more than 880 times, whereas the largest mine would do so more than 3,900 times.

In total, these three mine components (mine pit, tailings impoundments, and waste rock piles) would cover an area larger than Manhattan. Mine construction and operation would also require the construction of support facilities, including a major transportation corridor, pipelines, a power-generating station, wastewater treatment plants, housing and support services for workers, administrative offices, and other infrastructure. Such facilities would greatly expand the “footprint” of the mine and affect additional aquatic resources beyond the scope of this proposed determination. Although NDM/PLP’s

preliminary plans (Ghaffari et al. 2011, SEC 2011) could change, any mining of this deposit would, by necessity, require similar mine components, support facilities, and operational features.

Given the extent of streams, wetlands, lakes, and ponds both overlying the Pebble deposit and within adjacent watersheds, excavation of a massive mine pit and construction of large tailings impoundments and waste rock piles would result in discharge of dredged or fill material into these waters. This discharge would result in complete loss of fish habitat due to elimination, fragmentation, and dewatering of streams, wetlands, and other aquatic resources. In addition, water withdrawal and capture, storage, treatment, and release of wastewater associated with the mine would significantly impair the fish habitat functions of other streams, wetlands, and aquatic resources. All of these losses would be irreversible.

Based upon information known to EPA about the proposed mine at the Pebble deposit and its potential impact on fishery resources, and as a result of multiple inquiries, concerns, and petitions to EPA to use its authorities to protect these fishery resources, EPA decided to conduct an ecological risk assessment before considering any additional steps. After three years of study, two rounds of public comment, and independent, external peer review, EPA released its *Assessment of Potential Mining Impacts on Salmon Ecosystems of Bristol Bay, Alaska*<sup>3</sup> (the Bristol Bay Assessment) (USEPA 2014) in January 2014. The Bristol Bay Assessment established that the extraction, storage, treatment, and transportation activities associated with building, operating and maintaining one of the largest mines ever built would pose significant risks to the

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<sup>3</sup> For more information about EPA's efforts in Bristol Bay or copies of the Bristol Bay Assessment, see <http://www.epa.gov/bristolbay>.

unparalleled ecosystem that produces one of the greatest wild salmon fisheries left in the world. In simple terms, the infrastructure necessary to mine the Pebble deposit jeopardizes the long-term health and sustainability of the Bristol Bay ecosystem.

The Bristol Bay Assessment characterizes the significant ecological resources of the region and describes potential impacts to salmon and other fish from large-scale porphyry copper mining at the Pebble deposit. The Bristol Bay Assessment evaluated these impacts using three mine scenarios that represent different stages of mining at the Pebble deposit, based on the amount of ore processed:

- Pebble 0.25 stage mine (approximately 0.25 billion tons of ore over 20 years);
- Pebble 2.0 stage mine (approximately 2.0 billion tons of ore over 25 years); and
- Pebble 6.5 stage mine (approximately 6.5 billion tons of ore over 78 years).

Ghaffari et al. (2011) indicate that the total mineral resources at the Pebble deposit are now believed to be approximately 12 billion tons of ore. Thus, it is expected that development of a mine at the Pebble deposit would ultimately be much larger than the 0.25 stage mine and could exceed the 6.5 stage mine. NDM has stated to the public that “the Pebble deposit supports open pit mining utilizing conventional drill, blast and truck-haul methods, with an initial mine life of 25 years and potential for mine extensions to 78 years and beyond” (NDM 2011). This statement, along with others to investors, indicate that NDM is actively considering a mine size between 2.0 and 6.5 billion tons.

Nevertheless, EPA also assessed the impacts of a much smaller mine footprint in the Bristol Bay Assessment. The 0.25 stage mine is based on the worldwide median size porphyry copper deposit (Singer et al. 2008). Although this smaller size is dwarfed by the

mine sizes that NDM/PLP put forward to the SEC (Ghaffari et al. 2011, SEC 2011), its impacts would still be significant.

In total, the Bristol Bay Assessment estimates that habitat losses associated with the 0.25 stage mine would include nearly 24 miles (38 km) of streams, representing approximately 5 miles (8 km) of streams with documented anadromous fish occurrence and 19 miles (30 km) of tributaries of those streams (USEPA 2014: Chapter 7). Total habitat losses would also include more than 1,200 acres (4.9 km<sup>2</sup>) of wetlands, lakes, and ponds, of which approximately 1,100 acres (4.4 km<sup>2</sup>) are contiguous with either streams with documented anadromous fish occurrence or tributaries of those streams. For the largest mine that NDM/PLP put forward to the SEC (the 6.5 stage mine), stream losses would expand to 94 miles (151 km), representing over 22 miles (36 km) of streams with documented anadromous fish occurrence and 72 miles (115 km) of tributaries of those streams (USEPA 2014: Chapter 7). Total habitat losses for the 6.5 stage mine would also include more than 4,900 acres (19.8 km<sup>2</sup>) of wetlands, lakes, and ponds, of which approximately 4,100 acres (16.6 km<sup>2</sup>) are contiguous with either streams with documented anadromous fish occurrence or tributaries of those streams.

To put these numbers in perspective, stream losses for just the 0.25 stage mine would equal a length of more than 350 football fields and the 0.25 stage mine wetland losses would equal an area of more than 900 football fields. Although Alaska has many streams and wetlands that support salmon, individual streams, stream reaches, wetlands, lakes, and ponds play a critical role in protecting the genetic diversity of Bristol Bay's salmon populations. Individual waters can support local, unique populations (Quinn et al. 2001, Olsen et al. 2003, Ramstad et al. 2010, Quinn et al. 2012). Thus, losing these

populations would erode the genetic diversity that is crucial to the stability of the overall Bristol Bay salmon fisheries (Hilborn et al. 2003, Schindler et al. 2010, USEPA 2014: Appendix A).

These stream, wetland, and other aquatic resource losses also would reverberate downstream, depriving downstream fish habitats of nutrients, groundwater inputs, and other subsidies from lost upstream aquatic resources. In addition, water withdrawal, capture, storage, treatment, and release at even the 0.25 stage mine would result in streamflow alterations in excess of 20% in more than 9 miles (nearly 15 km) of streams with documented anadromous fish occurrence. These streamflow changes would result in major changes in ecosystem structure and function and would reduce both the extent and quality of fish habitat downstream of the mine to a significant degree. The impacts from the larger mine sizes NDM/PLP has forecasted would be significantly higher. The 2.0 and 6.5 stage mines would result in streamflow alterations in excess of 20% in more than 17 miles (27 km) and 33 miles (53 km), respectively, of streams with documented anadromous fish occurrence (USEPA 2014: Chapter 7).

The CWA is a law essential for EPA's mission, which is to protect and restore the environment and public health for current and future generations. Section 404(c) of the CWA authorizes EPA to prohibit, restrict, or deny the use of any defined area in waters of the United States for specification as a disposal site whenever it determines, after notice and opportunity for public hearing, that the discharge of dredged or fill material into the area will have an unacceptable adverse effect on fishery areas (including spawning and breeding areas). EPA has used its section 404(c) authority judiciously and

sparingly, having completed only 13 section 404(c) actions in the 42-year history of the CWA.

As a first step in the regulatory process pursuant to section 404(c), EPA Region 10 coordinated with NDM/PLP and the State of Alaska to provide them an opportunity to submit information that demonstrated either that no unacceptable adverse effects would result from discharges associated with mining the Pebble deposit or that actions could be taken to prevent unacceptable adverse effects on fishery areas. EPA Region 10 met with both NDM/PLP and the State and extended the time period for both to submit this information.

Both NDM/PLP and the State of Alaska submitted information that raised scientific and technical issues, most of which had been previously raised in public comments on the Bristol Bay Assessment. However, this information did not demonstrate to the satisfaction of EPA Region 10 that no unacceptable adverse effects on fishery areas will occur should the disposal of dredged or fill material associated with mining of the Pebble deposit proceed.

Therefore, EPA Region 10 has decided to take the next step in the section 404(c) review process, publication of this proposed determination. As part of a section 404(c) proposed determination, the EPA Regional Administrator must identify a defined area, known as the disposal site, where its prohibitions or restrictions would apply. In this case, the proposed geographic boundaries of the potential disposal site are the waters within the mine claims held by NDM subsidiaries, including PLP, that fall within the SFK, NFK, and UTC watersheds. EPA Region 10 focused on this area because it determined

that it best represents the smallest geographical area where the discharge of dredged or fill material associated with mining the Pebble deposit is most likely to occur.

To protect important fishery areas in the SFK, NFK, and UTC watersheds from unacceptable adverse effects, EPA Region 10 recognizes that losses of streams, wetlands, lakes, and ponds and alterations of streamflow each provide a basis to issue this section 404(c) proposed determination.

Given the proposals made by NDM/PLP to develop 2.0- and 6.5-billion-ton mines at the Pebble deposit (Ghaffari et al. 2011, SEC 2011) and EPA's evaluation of the 0.25-billion-ton mine (USEPA 2014), the Regional Administrator has reason to believe that mining of the Pebble deposit at any of these sizes, even the smallest, could result in significant and unacceptable adverse effects on ecologically important streams, wetlands, lakes, and ponds and the fishery areas they support.

Accordingly, the Regional Administrator proposes that EPA restrict the discharge of dredged or fill material related to mining the Pebble deposit into waters of the United States within the potential disposal site that would, individually or collectively, result in any of the following.

**1. Loss of Streams**

- a.** The loss of 5 or more linear miles of streams with documented anadromous fish<sup>4</sup> occurrence; or

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<sup>4</sup> Anadromous fish are those that hatch in freshwater habitats, migrate to sea for a period of relatively rapid growth, and then return to freshwater habitats to spawn. For the purposes of these restrictions, anadromous fish refers to coho or silver (*Oncorhynchus kisutch*), Chinook or king (*O. tshawytscha*), sockeye or red (*O. nerka*), chum or dog (*O. keta*), and pink or humpback (*O. gorbuscha*) salmon.

**b.** The loss of 19 or more linear miles of streams where anadromous fish are not currently documented, but that are tributaries of streams with documented anadromous fish occurrence; or

**2. Loss of Wetlands, Lakes, and Ponds.** The loss of 1,100 or more acres of wetlands, lakes, and ponds contiguous with either streams with documented anadromous fish occurrence or tributaries of those streams; or

**3. Streamflow Alterations.** Streamflow alterations greater than 20% of daily flow in 9 or more linear miles of streams with documented anadromous fish occurrence.

These restrictions derive from the estimated impacts resulting from the discharge of dredged or fill material associated with construction and routine operation of a 0.25 stage mine at the Pebble deposit, as evaluated in the Bristol Bay Assessment (USEPA 2014).

EPA Region 10's evaluation of relevant portions of the section 404(b)(1) Guidelines (40 CFR part 230) further demonstrates that discharge of dredged or fill material resulting in the level of adverse effects identified in the proposed restrictions could result in unacceptable adverse effects on fishery areas. Degradation of these aquatic resources would be even more pronounced given extensive cumulative impacts at successive stages of mine expansion (i.e., 2.0 and 6.5 stage mines or larger) at the Pebble deposit, including elevated instream copper concentrations sufficient to cause direct toxicity to fish. Toxic effects on fish would include fish kills; reduced survival, growth,



and/or reproduction; and reduced sensory acuity, which is important to salmon for locating natal streams, finding food, and avoiding predators.

EPA Region 10 recognizes it has underestimated potential adverse effects to resources within the SFK, NFK, and UTC watersheds from mining the Pebble deposit for several reasons. This evaluation does not include footprint impacts associated with all of the components necessary to construct and operate such a mine (e.g., a major transportation corridor, pipelines, a power-generating station, wastewater treatment plants, housing and support services for workers, administrative offices, and other infrastructure). It also does not rely upon impacts resulting from potential accidents and failures as a basis for its findings. There is a high likelihood that wastewater treatment plant failures would occur, given the long management horizon expected for the mine (i.e., decades). There is also real uncertainty as to whether severe accidents or failures, such as a complete wastewater treatment plant failure or a tailings dam failure, could be adequately prevented over a management horizon of centuries, or even in perpetuity, particularly in such a geographically remote area subject to climate extremes. If such events were to occur, they would have profound ecological ramifications. By not relying on potential accidents and failures, EPA Region 10 has employed a conservative analysis of adverse effects.

Known compensatory mitigation techniques are unlikely to offset impacts of the nature and magnitude described in the proposed restrictions. Compensatory mitigation is the concept of improving stream or wetland health in other parts of the watershed to compensate for stream or wetland destruction or degradation in a separate area. Compensatory mitigation efforts typically involve restoration and enhancement of waters

that have potential for improvement in ecological services. However, the waters of the Bristol Bay watershed are already among the most productive in the world. EPA Region 10 sees little likelihood that human activity could improve upon the high quality natural environment in the Bristol Bay watershed that nature has created and has thus far been preserved. Compensation methods proposed by PLP, including placement of in-stream structures, stream fertilization, and construction of spawning channels, have typically had only variable, local, or temporary effects, were designed for use in degraded watersheds, or resulted in adverse, unintended consequences (USEPA 2014: Appendix J).

Mine alternatives with lower environmental impacts at the Pebble deposit are not evaluated in either the Bristol Bay Assessment or this section 404(c) proposed determination. If these proposed restrictions are finalized, proposals to mine the Pebble deposit that have impacts below each of these restrictions would proceed to the section 404 permitting process with the U.S. Army Corps of Engineers. Any such proposals would have to meet the statutory and regulatory requirements for permitting under section 404.

After evaluating available information, EPA Region 10 has reason to believe that unacceptable adverse effects on fishery areas (including spawning and breeding areas) could result from the discharge of dredge or fill material associated with mining the Pebble deposit. Further, it has not been demonstrated to the satisfaction of EPA Region 10 that no unacceptable adverse effect(s) will occur.

EPA Region 10 is soliciting public comment on all issues discussed in this proposed determination, including likely adverse impacts to fishery resources, mitigation measures to potentially address these impacts, and other options to restrict or prohibit

potentially harmful discharges of dredged or fill material associated with mining the Pebble deposit. All comments will be fully considered as EPA Region 10 decides whether to withdraw the proposed determination or forward to EPA Headquarters a recommended determination to restrict the use of certain waters in the SFK, NFK, and UTC watersheds in southwest Alaska as disposal sites for the discharge of dredged or fill material associated with mining the Pebble deposit. Should EPA Region 10 make a recommended determination, EPA Headquarters will then determine, based on the recommended determination, public comments received on the proposed determination, and all other available, relevant information, whether to issue a final determination under section 404(c).

## **II. Solicitation of Comments on the Proposed Determination**

Please see the section above entitled ADDRESSES for information about how to obtain a copy of the proposed determination and how to submit comments on the proposed determination. EPA Region 10 is soliciting comments on all issues discussed in the proposed determination. In particular, we request:

- (1) Comments regarding whether the proposed determination should become the recommended determination and ultimately the final determination, and corrective action that could be taken to reduce the adverse impact of the discharges.
- (2) Additional information on the likely adverse impacts on fish and other ecological resources of the receiving waters that would be directly or indirectly affected by mining the Pebble deposit (including the SFK, NFK, and UTC and downstream reaches of the Nushagak and Kvichak Rivers).
- (3) Additional information on the water quality, flora, fauna, and hydrology of the waters identified in No. 2 above, and information on the fish species that would be affected by aquatic ecosystem changes if the discharges from the project occur.

- (4) Additional information about wildlife species that would be affected if the discharges from the project occur.
- (5) Additional information about recreational uses of the project area and how they would be impacted if the discharges from the project occur.
- (6) Additional information about drinking water (including municipal water supplies and private sources of drinking water such as streams and/or wells) and how they would be impacted if the discharges from the project occur.
- (7) Additional information on the potential for mitigation to be successful in reducing the impacts of the project.
- (8) Comments regarding the approach used to define the potential disposal site, including how EPA Region 10 weighed the factors discussed in section 2.2.3 and whether there are other factors or approaches EPA Region 10 should consider for defining the potential disposal site.
- (9) Whether the discharge of dredged or fill material associated with the project should be completely prohibited, restricted as proposed, restricted in another manner, or not restricted at all at this time. In particular, EPA Region 10 is also seeking comment on whether environmental effects associated with other mine stages or scenarios (e.g. environmental effects from mining approximately 2.0 billion tons of ore over 25 years) could provide a basis for alternative or additional restrictions.
- (10) Comment on the definitions provided in Section 5.
- (11) Comment on whether and how EPA Region 10's action under section 404(c) should consider discharge of dredged or fill materials beyond those associated with the mine pit, tailings dam, and waste rock piles, to include such discharges associated with the construction of other mine infrastructure (e.g., wastewater treatment facilities, transportation corridors, etc.).

All relevant data, studies, or informal observations are appropriate.

The record will remain open for comments until [INSERT DATE 60 DAYS FROM DATE OF PUBLICATION IN FEDERAL REGISTER]. All comments will be fully considered as EPA Region 10 decides whether to withdraw the proposed determination or forward to EPA Headquarters a recommended determination to restrict the use of certain waters in the SFK, NFK, and UTC watersheds in southwest Alaska as disposal sites for the discharge of dredged or fill material associated with mining the Pebble deposit.

Dennis J. McLerran,  
Regional Administrator, EPA Region 10.

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